

### Amendment to the Specification

1) Please replace the Abstract on page 13, within the Specification with the following rewritten paragraph:

—~~The present patent deals with new catalysts for the A composition and method for a~~ Catalytic Partial Oxidation (CPO) of methane to synthesis gas (hydrogen and carbon monoxide), a gas mixture widely employed in industry. ~~The discovered perovskite catalysts catalyst allows the process to carried out the process at low to proceed at low residence time obtaining providing a long time thermal stability in the reaction conditions notwithstanding the high temperature reached in the reactor. The fundamental component of the catalyst is the perovskite structure  $[A_zA'^{1-z}][B_{1-x-y}Ni_x Rh_y] O_{3-\delta}$  of the catalyst is obtained using mainly La, Sr, as A and A' cation sites (A, A': actinide and/or lanthanide, elements and/or elements from Group I and II) and mainly Fe, Ni, as B cation sites (B: transition metal element and/or element from Group III to V). The active phases Ni and/or Rh are inserted in the perovskite structure during the preparation and are reduced in situ or before the catalytic tests. The insertion of the Rh and Ni in the perovskite structure allows an high dispersion of the metal on the surface and increases its interaction with the perovskite matrix ensuring high activity and stability. The presence of both Rh and Ni is necessary to reach high catalytic performances since the reducibility and the stability in the reduced state is affected by the contemporary presence of the cations. The choice of the A, A' elements are critical for the initial performances and the stability under time on stream of the catalyst for CPO reaction. The element are chosen in order of preference in the lanthanide family (La, Ce, ...) and the Group II.—~~

2) Please replace the sentence on page 1, line 3-5 with the following rewritten sentence:

—~~The catalytic partial oxidation of hydrocarbons (CPO), natural gas or methane to synthesis gas, which consist resulting in mixtures of hydrogen (H<sub>2</sub>) and carbon monoxide (CO) in various proportions, has been processed for many years.—~~

3) Please replace the word cristallographic on page 2, line 22, with the following word:

crystallographic.

4) Please replace the word stoichiometric on page 3, line 4, with the following word:

stoichiometric.

5) Please insert the following subheadings:

At page 1, lines 1 and 2:

**Background of the Invention**

**1. Field of the Invention**

At page 1, line 3:

**2. Related Art**

At page 2, line 21:

**Summary of the Invention**

At page 3, line 6:

**Brief Description of the Drawings**

6) Please add the following text at page 3, line 6, after the drawings subtitle inserted above:

For a further understanding of the nature and objects for the present invention, reference should be made to the following detailed description, taken in conjunction with the accompanying drawings, in which like elements are given the same or analogous reference numbers and wherein:

- Figure 1 discloses XRD patterns of  $\text{LaFe}_{1-x}\text{M}_x\text{O}_3$  catalysts after calcination at 900°C.
- Figure 2 discloses XRD patterns of  $\text{La}_{0.8}\text{Ce}_{0.2}\text{Fe}_{0.7}\text{Ni}_{0.25}\text{Rh}_{0.05}\text{O}_3$  catalysts after calcination at 900°C.
- Figure 3 discloses XRD patterns of  $\text{La}_{0.8}\text{Ce}_{0.2}\text{Fe}_{0.7}\text{Ni}_{0.25}\text{Rh}_{0.05}\text{O}_3$  catalysts after calcination at 900°C and 1100°C.

- Figure 4 discloses CPO tests of  $\text{La}_{0.8}\text{Ce}_{0.2}\text{Fe}_{0.7}\text{Ni}_{0.25}\text{Rh}_{0.05}\text{O}_3$  catalyst under time on stream at 500 and 750 °C.

7) Please insert the following subheadings:

At page 3, line 6:

**Description of Preferred Embodiments**

At page 4, line 14:

**Examples**

8) Please add the following paragraph to page 10, line 7:

It will be understood that many additional changes in the details, materials, steps and arrangement of parts, which have been herein described in order to explain the nature of the invention, may be made by those skilled in the art within the principle and scope of the invention as expressed in the appended claims. Thus, the present invention is not intended to be limited to the specific embodiments in the examples given above.